

# ABSTRACT

An electrochemical sensor is provided for measuring the concentration of nitrogen oxides in a gas to be measured, in particular in the exhaust gas of internal combustion engines in motor vehicles, having a first pump cell which includes a solid electrolyte and a pair of electrodes situated thereon which are connected to a first pump voltage, and having a second pump cell situated downstream in the gas flow which includes a solid electrolyte and a pair of electrodes situated thereon which are connected to a second pump voltage. To achieve an easily manufactured, more economical design of the sensor, for the electrodes in a first pump cell, the first electrode is exposed to the exhaust gas and the second electrode is exposed to a reference gas, and for the electrodes in a second pump cell, the first electrode is exposed to the gas volume leaving the first pump cell and the second electrode is also exposed to the reference gas. A Nernst cell for regulating the pump voltage at the first pump cell is thereby dispensed with, and the sensor may be used at the same time for measuring the oxygen concentration in the gas to be measured.